



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,191	08/14/2001	Vinod P. Menon	41530/28285	1207

21888 7590 07/28/2004

THOMPSON COBURN, LLP  
ONE US BANK PLAZA  
SUITE 3500  
ST LOUIS, MO 63101

EXAMINER
----------

PEZZUTO, HELEN LEE

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/929,191	MENON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Helen L. Pezzuto	1713	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/11, 12/02</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 1713

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-37, and the cancellation of non-elected claims 38-76 in the reply filed on 7-15-04 is acknowledged.
2. The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8, 22-23, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of Markush group in claim 8 is confusing. Please make the necessary correction.

The polymer molecular weight expressed in claims 22-23 is indefinite, and should be defined by one of the standard types (Mw, Mn, etc).

In claim 34, what is the scope and meaning of the "copolymer of homopolymer of..". Please clarify.

Art Unit: 1713

***Claim Rejections - 35 USC § 102/103***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this

Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Eiffler (US-849 or EP-109).

US 5,520,849 and EP 0 308 109 both to Eiffler (same assignee) disclose a process of preparing electrically conductive polymer composition. Prior art process entails oxidative polymerization of one or more aromatic compounds (i.e. pyrrole) in the presence of a polymer having an ammonium groups. Suitable ammonium group containing polymer include the instant poly(diallyldimethylammonium chloride) and quaternized poly(2- or 4-vinylpyridine) polycation, copolymers thereof (US-849, col. 7, line 61 to col. 8, line 55) having the recited molecular weight (col. 9, lines 1-14), which is then under anion exchange with the

Art Unit: 1713

polydentate anionic complexes in an oxidizing agent (i.e.  $K_2S_2O_8$ ). In one of prior art embodiments, the monomer is polymerized in-situ in the presence of the ammonium group-containing polymer, an oxidizing agent which contains the polydentate anionic complex (EP-109, page 11, lines 12-21; US-849, lines 33-39; US-849, example 19), which essentially embraces the presently claimed process. The polymerization reaction is taken place in water at a temperature of between 15 and 40°C, producing a conductive polymer composition in granular or powder form (EP-109, page 10, lines 5-15). Both conductive homopolymer and copolymer are within the scope of prior art polypyrrole (US-849, col. 11, line 66 to col. 12, line 58). The pH range expressed in claims 13-14 is anticipated in light of working examples 18-19 in US-849. The resulting conductive polypyrrole composition, and coating has conductivity that fall within the instant range (US-849, col. 14, lines 40-60; col. 17, lines 61-63). It is noted that the instant process does not preclude additional ingredients such as conducting salts in prior art. It is the position of the examiner that the instant process is encompassed by that of prior art, with the exception that prior art is silent regarding the reaction until no decrease in potential occurs. The examiner

Art Unit: 1713

takes the position that since the formation of polypyrrole in prior art signals the completion of the oxidative polymerization process, the limitation of substantially no decrease in potential would be an inherent characteristic of prior art process. Accordingly, the instant invention is anticipated by prior art disclosures.

***Claim Rejections - 35 USC § 103***

7. Claims 1-2, 4-8, 15-21, 27-28, 33-34, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warren, Jr. et al. (US-401).

U.S. 4,710,401 discloses a method of printing electrically conductive images on a dielectric substrate. Prior art imaging method entails applying ink in form of an oxidizing agent on selective area of the substrate, contact the ink area with a liquid pyrrole solution (col. 3, lines 8-11), whereby forming the polypyrrole image. Prior art further suggest adding 0.1 to 50 wt% of poly(diallyldimethylammonium chloride) as a thickener (col. 5, lines 14). The prior art process is performed at ambient/room temperature (col. 6, lines 5-6). The conductivity of the resulting coating falls within the scope of those presently claimed. Prior art further teach that the conductivity within the pyrrole polymer can be

Art Unit: 1713

adjusted by varying the quantity of ink or oxidant deposited on the substrate and the amount of time exposed to pyrrole (col. 6, lines 39-65). Thus, it would have been obvious to one skilled in the art to determine from the general disclosure of the reference, the optimum or workable ranges of pyrrole, oxidant, and anion as expressed in the present claims so as to obtain the desirable conductivity of the resulting conductive polypyrrole. Thus, rendering obvious the present claims.

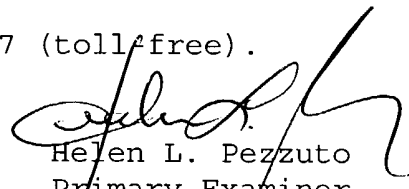
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



Helen L. Pezzuto  
Primary Examiner  
Art Unit 1713

hlp